

# **INDUSTRIAL HYGIENE INFORMATION AND REGULATORY ACTIONS SUMMARY November and December 2000**

## **TABLE OF CONTENTS**

### **REGULATORY ACTIONS - Final Rules**

#### **OSHA Issues Ergonomics Standard**

OSHA issued the ergonomics standard as a final rule in the Federal Register on November 14, 2000. The standard provides requirements for an ergonomics program, to include:

- hazard information and reporting,
- management leadership and employee participation,
- job hazard analysis and control,
- training,
- musculoskeletal disorder (MSD) management, and
- program evaluation.

The standard provides the employer with several options for evaluating and controlling risk factors for jobs covered by the ergonomics program, and provides objective criteria for identifying MSD hazards in those jobs and determining when the controls implemented have achieved the required level of control.

The standard contains an "action trigger," which identifies jobs with risk factors of sufficient magnitude, duration, or intensity to warrant further examination by the employer. This action trigger acts as a screen. When an employee reports an MSD, the employer must first determine whether the MSD is an MSD incident. An MSD incident is defined by the standard as an MSD that results in days away from work, restricted work, medical treatment beyond first aid, or MSD symptoms or signs that persist for 7 or more days. Once this determination is made, the employer must determine whether the employee's job has risk factors that meet the standard's action trigger. The risk factors addressed by this standard include repetition, awkward posture, force, vibration, and contact stress. If the risk factors in the employee's job do not exceed the action trigger, the employer does not need to implement an ergonomics program for that job.

The Federal Register specifies an effective date of January 16, 2001.

Full text of the standard is available at:

<http://www.osha-slc.gov/ergonomics-standard/index.html>

Several organizations have sued. These suits, if upheld, will delay the implementation of the rule.

## **OSHA ACTIVITIES**

### **Chief Says OSHA Will Consider Request To Extend Deadlines for Grandfather Clause**

The head of the Occupational Safety and Health Administration told BNA Dec. 7 that the agency will consider a request by a management consulting group to delay deadlines for employers to meet requirements that would allow their ergonomics programs to be grandfathered under the new ergonomics standard.

Administrator Charles N. Jeffress said that Organization Resources Counselors Inc.'s request "does raise issues worth looking at."

ORC petitioned OSHA Dec. 1 and specifically asked OSHA to extend the Jan. 16, 2001, deadline by which an employer's existing program must meet the standard's requirements.

The group requested that OSHA extend until March 17, 2001, the time an employer has to initially evaluate its program's elements and the program's effectiveness as a whole.

ORC also asked OSHA to extend the deadline until Oct. 15, 2001, for employers to control musculoskeletal disorder hazards or reduce them to the levels below those in the hazard identification tools outlined in the standard's Appendix D or to the extent feasible, and to evaluate hazards to assure that controls are effective.

### **Too Little Time to Comply**

While ORC acknowledged OSHA has supported a provision to permit employers with effective ergonomics programs to be in compliance with the standard, the group noted that employers have only 60 days from the publication of the standard to meet the requirements of the grandfather clause. The problem is exacerbated because the period includes three major holidays "during which many employers are essentially closed for normal business activities," ORC said.

"The unanticipated addition of substantial new provisions to the grandfather clause and related sections of the final standard makes it infeasible for employers with well-developed ergonomics programs to make the necessary changes and demonstrations by the current effective date," ORC wrote in its petition.

In a recent interview, ORC official Frank White told BNA that the grandfather clause "has been improved, at least marginally." However, OSHA has incorporated "whole new criteria on whether your program is effective," and the time allotted employers with programs to comply "if not unworkable, is very difficult to work with" he said.

OSHA's Jeffress told BNA that the final ergonomics rule took into consideration testimony from the hearings on the rule and comments from employers that had programs in place. A number of employers presented evidence of how effective their programs were during the public comment period, Jeffress said.

"We anticipated that people had that evidence sitting around because they presented it to us," Jeffress said. He added that the petition suggests that employers do not have evidence yet, or they might not yet have it in a form they feel comfortable giving to the agency.

### **OSHA Updates Directive Covering Powered Industrial Truck Operator Training**

The Occupational Safety and Health Administration recently updated its compliance directive on powered industrial truck operator training standards.

A revised version of "Compliance Assistance for the Powered Industrial Truck Operator Training Standards" (CPL 2-1.28A), was posted on the agency's World Wide Web site Dec. 7. Compliance directives provide guidance for agency enforcement officers during field inspections.

The update was needed because OSHA "is reviewing the appropriate training and coverage of personnel and burden carriers," the directive says. Because of the review, OSHA will not enforce the training standard for "Personnel and Burden Carriers, ASME B56.8." As a result, reference to personnel and burden carriers was deleted from question 12 in Appendix A, the directive said.

OSHA revised its training requirements for the powered industrial truck standard in December 1998, requiring employers that use forklifts and other industrial trucks at their work sites to provide thorough initial training to truck operators and refresher training every three years ( 63 FR 66237 ). The final rule covered a construction, maritime, longshoring, shipyards, and general industry ( 28 OSHR 813 ). At that time, personnel and burden carriers were named in the training standard.

The revised compliance directive contains three appendices. Appendix A provides a list of questions and answers to assist agency inspectors ensure compliance with the powered industrial truck operator training standards; Appendix B provides a copy of an Oct. 9, 1996, seat belt enforcement memorandum; and Appendix C provides a copy of the July 14 settlement agreement between the agency and National Maritime Safety Association ( 30 OSHR 760 ).

For more information, contact Patrick Kapust, OSHA Directorate of Compliance Programs, 200 Constitution Ave, NW, Room N-3603, Washington, D.C. 20210; (202) 693-1850.

## **OSHA Revises Site Specific Targeting**

OSHA has revised their Site-Specific Targeted Inspection plan for 2001. A description follows:

### **Inspection Targeting List**

- The SST-MM plan selects for inspection individual general industry worksites, as identified through the 1999 Data Initiative. The national average LWDII rate for private industry for 1998 was 3.1. The SST-MM plan initially selects for inspection all worksites with a LWDII rate at or above 14.0 (maximum of 4200 sites).
- This year there is no limitation on the number of inspections for nursing homes. OSHA will inspect all nursing homes with a LWDII rate at or above 14.0.

### **Supplemental Inspection List**

- If an Area Office will complete its inspections of all establishments with LWDII rates at or above 14.0 (i.e., the main Inspection List in IX. A., above) before January 31, 2001, it should obtain additional establishments from those establishments reporting an LWDII rate between 8.0 and less than 14.0 in the 1999 Data Initiative. OSHA will follow the procedures in this notice in conducting these inspections.

The full text of the new directive is available at:

[http://www.osha-slc.gov/OshDoc/Directive\\_data/CPL\\_2\\_2000-5.html#PURP](http://www.osha-slc.gov/OshDoc/Directive_data/CPL_2_2000-5.html#PURP)

## **Sharps**

President Clinton signed legislation to promote the use of safe needle devices in the health care settings at both the federal and state levels into law. The national measure amends OSHA's bloodborne pathogen standard to require hospitals and other health care facilities to identify and provide safer sharp control systems.

## **Injury, Illness Reporting Revisions at OMB, Jeffress Tells Advisory Committee**

OSHA sent the long-awaited revisions to the Occupational Safety and Health Administration's revised standard for employer recordkeeping to the White House Office of Management and Budget Dec. 4. OSHA expects to publish the rule in early January with an effective date of January 2002.

According to Jeffress, the rule that is now under review is "mostly a refinement" of the proposal the agency published in 1996. The regulation is clearer on the following issues:

- the work-relatedness of a reported injury,
- when musculoskeletal injuries must be reported,
- how to define light duty, and
- what constitutes first aid as opposed to medical treatment.

The revised rule would change and simplify the forms employers have used since the 1970s to record work-related injuries and illnesses.

OSHA also proposed to lessen the burden of compliance on small businesses by exempting non-construction employers with fewer than 20 employees.

### **Jeffress Says New Reporting Rule Will Simplify Decision on Recording Injuries**

Charles N. Jeffress, OSHA's administrator, said in an interview with BNA that he could not comment specifically on how the final rule, now in the final stages of review at OMB, will resolve the work-related issue. But he said OSHA has rejected one possibility discussed throughout the rulemaking--allowing employers to assign a percentage to an injury to reflect the degree to which it would be considered work-related--because making that distinction would only further complicate the issue.

#### **Percentage Rejected**

"That would be a much more difficult decision than [allowing] employers to make a common sense decision" on whether an injury is work-related, the OSHA administrator said. The agency faced a similar problem when promulgating its controversial ergonomics rule, published in final form in November, but found the concept unworkable, he said.

"We're still discussing this with OMB, but the idea that it would be possible to assign a percentage to the cause of an injury or illness is just not something that we found practical with ergonomics and I would not expect to see that come out in the recordkeeping [rule]," he said.

"The way we dealt with that in the ergonomics rule is we talked about a significant aggravation of a pre-existing condition" being necessary before the case would be considered an injury, Jeffress said. "This same type of philosophy will be in the recordkeeping rule, and it will give people some assurance that miniscule contributions are not what we're talking about when we talk about [what should be considered] work-related," he said.

The OSHA recordkeeping requirements, which have been in place since the early 1970s, require employers to log each injury or illness and to make the records available to OSHA compliance officers during inspections. BLS uses the records to develop its annual report card on the safety of nation's work sites.

OSHA formally proposed the revisions in 1996 ( 25 OSHR 1133 ).

#### **Fate of Small Business Exemption.**

Jeffress also said OSHA has decided against broadening the current recordkeeping exemption to include a larger class of smaller employers, specifically those with 20 or fewer employees. As proposed, that exemption would not have applied to the construction industry.

Jeffress noted that the smallest employers, those with 10 or fewer employees, are already shielded from OSHA recordkeeping requirements because Congress each year passes an appropriations rider barring OSHA from enforcing paperwork requirements at that level.

"Congress has continued to use the 10 [or fewer] level for when OSHA should make a decision to enforce or not enforce" the requirements, Jeffress said. "A level of 10 [or fewer] seems to me to be an appropriate level," he said.

#### **Time to Comply**

The revision also would direct employers on when they must report musculoskeletal injuries. It also defines what is light duty, and what constitutes first aid as opposed to medical treatment. The rule would become effective in January 2002 to give employers and states time to modify their injury reporting systems, many of which are computerized, and ensure that the reporting of injuries will continue on a calendar year basis.

"For statistical purposes it is best for us and best for the nation if our data is consistent through calendar year 2001 and the new system in place for 2002," he said. "We encourage employers to use their existing compliant in 2001 and go to the new system until 2002".

"Nevertheless, if any employer goes to the new system early on--and as long as they're complying with good faith--we're not going to [cite] anybody," the OSHA chief said.

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## **CONGRESSIONAL ACTIONS OF INTEREST**

### **Asbestos**

The Nov 15 Federal Register contained the U.S. EPA Final Rule on Asbestos Worker Protection. The final rule amended both the Asbestos Worker Protection Rule and the Asbestos-in-Schools Rule from the EPA. The final rule would cross-reference the OSHA Asbestos standards for Construction and General Industry with the EPA WPR. The issues relevant to CIH's and CSP's collecting asbestos samples as "qualified " inspectors is being focused upon by AIHA.

## **TECHNICAL ARTICLES OF INTEREST**

### **D.C. Circuit Chosen to Hear Lawsuits Challenging OSHA's Ergonomics Rule**

The Judicial Panel on Multi-District Litigation Dec. 1 selected the U.S. Court of Appeals for the District of Columbia Circuit as the court in which to consolidate all the lawsuits that have been filed since the issuance of the final ergonomics standard.

Absent any challenge to the selection, the chosen court will issue a briefing schedule, most likely by early January, according to several industry attorneys working on the lawsuits.

### **Ergonomics Petition Filings**

The petitions challenging OSHA's ergonomics program standard filed in the following federal appellate courts and consolidated before the U.S. Circuit Court of Appeals for the District of Columbia Circuit include:

- U.S. Court of Appeals for the First Circuit --AFL-CIO and United Food and Commercial Workers ( AFL-CIO v. OSHA, 1st Cir., No. 00-2434, petition filed 11/17/00; United Food and Commercial Workers v. Occupational Safety and Health Administration, 1st Cir., No. 00-2448, 11/22/00).
- U.S. Court of Appeals for the Second Circuit --Union of Needletrades, Industrial and Textile Employees (UNITE v. OSHA, 2nd Cir., No. 00-4237, petition filed 11/17/00).
- U.S. Court of Appeals for the Third Circuit --United Steelworkers ( United Steelworkers v. OSHA, 3rd Cir., No. 00-3849, petition filed 11/17/00).
- U.S. Court of Appeals for the Fourth Circuit --Insurance companies ( Atlantic Indemnity Co. v. Herman, 4th Cir., No. 00-2461, petition filed 11/14/00).
- U.S. Court of Appeals for the Fifth Circuit --American Iron and Steel Institute ( American Iron & Steel Institute v. OSHA, 5th Cir., No. 00-60823, petition filed 11/22/00).
- U.S. Court of Appeals for the Ninth Circuit --International Brotherhood of Teamsters and the Oregon AFL-CIO ( Teamsters v. OSHA, 9th Cir., No. 00-71519, petition filed 11/20/00; Oregon AFL-CIO v. OSHA, 9th Cir., No. 00-71529, petition filed 11/20/00).
- U.S. Court of Appeals for the District of Columbia Circuit --Separate petitions filed by the National Association of Manufacturers, the U.S. Chamber of Commerce, American Moving and Storage Association Inc., and the National Coalition on Ergonomics ( National Association of Manufacturers v. Occupational Safety and Health Administration, D.C. Cir., No. 00-1473, supplemented petition filed 11/14/00; Chamber of Commerce of the United States v. Occupational Safety and Health Administration, D.C. Cir., No. 00-1477, supplemented petition filed 11/14/00; American Moving & Storage Assn. Inc. v. Herman, D.C. Cir., No. 00-1493, petition filed 11/21/00; National Coalition on Ergonomics v. OSHA, D.C. Cir., NO 00-1490, petition filed 11/20/00).

### **Exploding Fire Extinguisher**



The Mine Safety and Health Administration posted a notice on its Web site warning mine operators that fire extinguishers with a base made of plastic or rubber may have dangerous corrosion hidden by the base. The alert was prompted by an August 25, 2000, fatality when an employee used such an extinguisher on a small fire and the device exploded. Flying debris killed the worker, according to the notice, which was written by the Department of Energy's office in Germantown, Maryland.

The device that exploded was an Ansul Inc. dry chemical fire extinguisher that is depressurized until use, when a gas cartridge is discharged to pressurize the unit. The notice includes two photographs; one of them shows corrosion on the bottom of an extinguisher, under the rubber base, which has been removed. "Following the incident, a number of other extinguishers of the same make and type were checked and found to be seriously corroded," the notice says.

Ansul's Technical Bulletin Number 50 discusses hydrostatic retesting requirements for these cylinder. The company, which is based in Marinette, Wisconsin, offers a chart showing the required retest intervals and pressures. See <http://www.ohsonline.com>

### **FDA Initiates Another Eyewash Recall Because of Contamination**

The U.S. Food and Drug Administration on Tuesday said a nationwide safety recall is being made by Bausch & Lomb of Collyrium Eye Wash because of phenol contamination. The recall involves 754,080 four-ounce bottles made by the Rochester, New York company and bearing Bausch & Lomb or Wyeth Laboratories labels.

It is a Class II recall, #D-071-1. All of the recalled product bears expiration dates between June 2001 and July 2002. The contamination involves phenol, which is used in the product's labeling, mixing with the eyewash inside the bottles, FDA said.

Last year, H.L. Bouton announced a recall of a much smaller amount of eyewash because of contamination concerns. See <http://www.ohsonline.com>

### **Workplace Injuries Decline to Record Lows; Manufacturing Has Highest Industry Rate**

On-the-job injuries and illnesses declined another 4 percent in 1999. The nation's injury and illness rate--6.3 cases for every 100 workers--was the lowest since the federal government began reporting annual injury figures.

Some 5.7 million nonfatal injuries and illnesses were counted for 1999, compared with 6.1 million in 1998. Most of the injuries and illnesses counted for 1999--some 5.3 million--were injuries, BLS said.

However, the U.S. annual total likely understates illnesses because many work-related conditions, such as various cancers caused by chemical exposures, are

often difficult to link to workplace exposure, BLS said. "The overwhelming majority of the reported new illnesses are those that are easier to directly relate to workplace activity (for example, contact dermatitis or carpal tunnel syndrome)," BLS said.

The overall rate of 6.3 cases per 100 workers in 1999 is evidence of a consistent decline in the nation's injury and illness rate from the 1973 high of 11.0 per 100 workers in the bureau's first survey. The decline has been nearly as dramatic in recent years, falling from 8.4 per 100 in 1994.

The 4 percent decline in total cases came even as employees were working more in 1999, with hours worked up some 2 percent, BLS said.

Severe injuries and illnesses--those that result in lost work days--fell to about 2.7 million in 1999, an improvement from the 2.8 million reported in 1998, BLS said. The lost workday case rate also declined, from 3.1 cases per 100 workers in 1998 to 3.0 cases per 100 last year.

While the declines are encouraging, BLS said that employers are placing more severely injured workers in restricted jobs rather than sending them home to recuperate. The rate for workers placed on restricted work activity--working in jobs that require no heavy lifting, for example--climbed from 0.7 cases per 100 workers in 1990 to 1.2 cases per 100 in 1998. The 1999 figure was essentially unchanged from 1998.

### **Manufacturing Leads Other Industries**

BLS said manufacturing continues to report the highest injury and illness rate of 9.2 cases per 100, compared with 7.3 cases per 100 for the transportation and public utilities sector and 6.1 cases per 100 for wholesale and retail trade.

Musculoskeletal disorders and other illnesses caused by repetitive motion and other repeated trauma accounted for 66 percent of the reported work-related illnesses, but overall represented just 4 percent of the 5.7 million total workplace injuries and illnesses. However, the 1999 figures include illnesses other than musculoskeletal disorders, such as noise-induced hearing loss, that also stem from repeated exposure, BLS said.

Among large industry sectors, manufacturing's overall injury and illness rate has declined steadily from 11.6 injuries per 100 workers in 1995 to 9.2 per 100 workers in 1999. The comparable rate for the agriculture, forestry, and fishing industry sector declined from 9.7 to 7.3 over the same five-year period. Construction employers reported similar improvements, from a rate of 10.6 per 100 workers in 1995 to 8.6 per 100 workers in 1999.

The mining sector continued to improve in 1999, reporting a rate of 4.4 cases per 100 workers, BLS said.

Selected tables from the 1999 injury and illness survey are published in the Text section of this issue. For more details, view the BLS World Wide Web site, <http://stats.bls.gov/news.release/osh.nr0.htm>.

### **Effectiveness of Back Belt Use Disputed in CDC Study of Retail Workers, Back Injuries**

The use of back belts to reduce back pain or injury is again being disputed, this time in a Centers for Disease Control and Prevention study. The researchers found that retail workers who did not use the belts while lifting boxes were not injured more frequently than those who did.

The study, which CDC said, is the largest of its kind yet completed, "found no statistically significant difference" between workers who use the belts every day and others who rarely or never used them. The AMA published the study in its December 6 journal.

The research, conducted by CDC's National Institute for Occupational Safety and Health over a two-year period, compared the incidence rate of workers' compensation claims for belt users and non-belt users and found no difference. The study also found no association between belt use and the likelihood that a worker would "self-report" back pain. Nor were differences found in the injury rates of employees who were required to use the belts when compared with those who voluntarily used belts. The results of the study are consistent with a 1994 NIOSH study, which concluded there was inadequate scientific evidence that back belts actually reduce the risk of worker injuries.

The study, "Belts in the Workplace Not Associated With Reduction in Back Pain or Back Injury Claims" specifically concluded that:

- The rate of back injuries among workers who wore the belts every day (3.38 cases per 100 workers) was not statistically significant from that of workers who never wore the belts or wore them only once or twice a month (2.76 cases per 100 workers);
- Self-reported back pain was not significantly different for workers who usually wore the belts every day (17.1 percent) than for those who never wore them or wore them no more than once or twice a month (17.5 percent);
- The rate of back injury claims in stores that required the use of the belts (2.98 cases per 100 workers) was not significantly different from the rate (3.08 per 100 workers) for stores where its use was voluntary.

The strongest factor for predicting whether an employee would suffer a back injury was that employee's history of injury, the CDC said. Workers with previous injuries were nearly twice as likely to report injuries (5.14 cases per 100) than those without a previous injury (2.68 cases per 100), the report said.

The full text of the NIOSH study is available from their website at:

<http://www.cdc.gov/niosh/beltfind.html>

## **Doctors Urged to Improve Performance in Getting Injured Workers Back to Job**

Lack of cooperation from doctors is a major obstacle to returning disabled workers to the job, a panel of occupational physicians, employers, and insurers said at a symposium in Boston Dec. 1.

Doctors routinely practice "tough love" in most areas--prescribing painful therapy and bad-tasting medicine--but they are "uncomfortable confronting people who don't want to go back to work," said Jennifer Christian, president and chief medical officer of Webility.com, an Internet-based company that seeks to reduce lost work time.

Physicians also are more reluctant to refer cases to occupational specialists than they are to specialists in other areas, Christian told an audience composed mostly of doctors at a symposium sponsored by the New England College of Occupational and Environmental Medicine.

The cost of lost work time to employers dwarfs all other expenses arising from disability, according to Christian, who estimated that as much as 40 percent of lost time costs--or \$40 billion of the \$100 billion spent on sick, workers' compensation, and disability leave--is "medically unnecessary." The average non-lost time injury costs employers \$400, while injuries that result in lost time cost employers between \$12,000 and \$19,000, she added.

Doctors must do a better job of managing workplace injuries by time, in much the same manner that they track pregnancies or accounts receivable, said Christian. It is crucial to track the time since the injury occurred, not since the doctor became aware of the case, she added.

Delay costs money by keeping employees out of work longer, increasing the chances they will seek unneeded treatment, and decreasing their chances of ever returning to work, Christian said. Yet doctors delay transmitting notes to employers and their notes typically have no standard form or content, she commented. One reason for poor communication, she offered, is that doctors today often are required to see as many as six patients per hour.

### **Indirect Costs**

James C. Cronin, director of disability programs at Raytheon Corp., said that his company incurs direct costs of \$1,000 for every week of lost time, but that indirect costs--lost productivity, overtime, training, risk of additional injuries, and missed shipments--total four times as much.

Raytheon has 7,500 short-term disability claims a year, according to Cronin. If each such injury included a week of unnecessary lost time, it would cost the company \$7.5 million in direct payments and more than \$30 million altogether, he stated.

The employer's wish list for doctors, said Cronin, includes a few basic elements: quick access to treatment, a treatment plan that stresses return to work as the goal, objective supporting documentation, and efficient communication.

#### **No Need for `Gym Notes**

Documentation should include office notes describing the findings of an examination, test results, and hospital records, Cronin said. However, he added that employers are not interested in "gym notes," excusing employees from work. Doctors are not a reliable source for establishing a return to work date because they sometimes lie or reflect the wishes of their patients, he said.

Employers have much to offer doctors in return for their cooperation, Cronin said. "Employers are your major paying customer," accounting for 85 percent of medical premiums, Cronin reminded the audience.

Insurers expect medical providers to assist in managing disability, said Ken Martino, senior vice president for Hartford Insurance Co. "The goal in every single case has to be return to work," he stated.

The role of the treating physicians is the most critical, according to Martino, because they "can enable or disable an employee with their pen."

During the course of treatment, Martino said, doctors should answer six questions:

- Is the problem work-related?
- What is the diagnosis, treatment plan, and prognosis?
- Is the employee released to work?
- What are the employee's functional limitations and restrictions?
- Has the employee reached maximum medical improvement? and
- Is there any permanent impairment?

Some audience members challenged the view that doctors have a duty to anyone other than the patient. However, panel members countered that a speedy return to work is more beneficial to injured workers in the long run. Christian also asserted that failure to listen to business spawned the growth of health maintenance organizations. "We either pay attention to [employer's] need or someone else will do it," she warned.

#### **New Claim Creation**

Questioned about the impact of a new federal ergonomic standard on workers' compensation, Martino said he does not believe the standard will increase claims but it may create a new set of claims. Cronin predicted that the standard would be struck down on equal protection grounds because it imposes obligations on some industries, such as manufacturing, but not on others, such as construction.

## **Lighting the Way**

Standard-compliant safety markings help employees find their way out by Marina Batzke, Occupational Health and Safety, December 2000.

How can you improve safety in your facilities to avoid panic and help get people out of the buildings safely in darkness during an emergency?

### **Important Standard Documents**

ASTM, the American Society for Testing and Materials, recently published two new standards that specify photoluminescent safety markings:

- E 2072-00 Specification for Photoluminescent (Phosphorescent) Safety Markings
- E 2073-00 Test Method for Photopic Luminance of Photoluminescent (Phosphorescent) Markings

Specification E 2072-00 requires laboratory-tested photoluminescent safety markings to emit minimum 20 milli candela per square meter 10 minutes after activation has ended, and 2.8 mcd/m<sup>2</sup> after 60 minutes in the dark. Per ASTM E 2073-00, tested items that do not reach the indicated minimum luminance values do not qualify for safety installations.

### **How It Works**

You activate the markings with various light sources, such as fluorescent, incandescent, or daylight. A recommended activation time is 30 minutes: The brighter light, the better. Once you turn the lights off, the material emits its luminance. You recharge the material by exposing it to light again. There is no maintenance required (no changing of light bulbs, no wiring or battery backups to be checked) as you would have with electrical emergency lighting.

### **Guide for Recommended Uses**

Very important for safety and fire protection managers is a third ASTM document:

- E 2030-99 Guide for Recommended Uses of Photoluminescent Safety Markings

This document provides drawings to show typical applications in staircases, rooms, and corridors. It describes use in wall and floor installations and shows photoluminescent signage, ADA-compliant signs for the visually impaired, and escape route maps.

### **Wall markings**

Wall-mounted safety markings include paint coatings, tapes, bumper guards to point out corners and equipment, signs, and wall base and guidance strips attached to walls, doors, handrails, columns, and other obstructions.

### **Floor markings**

Floor-mounted safety markings may be floor-suitable paints, stair treads, floor tiles, anti-skid items, tactile warning strips for the visually impaired, resins, and glowing floor inserts to speed up escape.

### **Installation Recommendations**

Mark exit doorframes with a glowing outline and mark those door handles. This way, escaping occupants do not lose valuable time searching for the escape door in a long corridor. In addition to the EXIT sign above the door, install an exit path marker in a low location, not more than 8 inches away from the floor. During a building fire, evacuees crawling on the floor can localize this floor proximity marker.

Put photoluminescent NOT AN EXIT signs on doors that lead into a dead-end room so building occupants do not accidentally rush into a storage or photocopier room during a darkness emergency and then cannot find their way out.

Apply continuous low location markings on the floor or along the wall base.

- *Advantage A:* Electrical emergency lighting usually is point lighting. Exit signs can be spaced 100 feet apart. By installing photoluminescent markings as a continuous delineation, you mark the escape from the place of occupancy to the safe area. You provide your building occupants with illumination along their entire route of escape.
- *Advantage B:* During a fire, building occupants crawl low underneath the heavy smoke layer and can follow these illuminating floor proximity markings to the safe exit. The electrical emergency lighting under the ceiling may still function, yet it is probably obscured by the dense smoke. Photoluminescent low location lighting helps to facilitate the escape.

Mark machinery, columns, and protruding objects to avoid injuries from bumping into them. Point out firefighting equipment (extinguishers, alarms, hoses) with striping and signage.

Staircases especially can be very hard to escape through in full darkness. Highlight each step with a photoluminescent marking (stair edge, stair tread, floor paint, anti-skid tape), paint the handrail, and provide signs that indicate which floor occupants are on.

Following the World Trade Center explosion in New York in 1993, it took many building occupants hours to escape through the dark, smoke-filled staircases. These high-rise towers are now well equipped with photoluminescent epoxy paint on the stair edges and handrails, as well as signs indicating the floor numbers.

### **Getting What You Pay For**

For safety professionals, it is important to insist on ASTM E 2072-00 standard-compliant safety markings. Ask your supplier of photoluminescent safety markings for luminance certificates. The luminance values, measured in compliance with E 2073-00, have to exceed 20 mcd/m<sup>2</sup> after 10 minutes and 2.8 mcd/m<sup>2</sup> after 60 minutes.

### **Characterizing Water Damage During IAQ Investigations**

Water damage is divided into three different categories, clean water, gray water and black water. While all types of water damage, including "clean water" can result in the proliferation bacteria and fungi in building substrates, gray water and black water can contain elevated concentrations of pathogenic microorganisms, including bacteria, fungi, virus and parasites.

Because of the microbial hazards associated with gray and black water, the type of water damage is an important issue when designing an investigation, remediation and restoration strategy. For example, over 120 different viruses are excreted in human feces and urine, including Hepatitis A, rotavirus, adenoviruses and enteroviruses. Sewage often contains the parasites *Cryptosporidium*, *Giardia lamblia* and *Entamoeba histolytica* as well as the bacterial contaminants *Salmonella*, *Shigella*, *Escherichia coli*, *Campylobacter*, *Pseudomonas* and others.

While it is not practical or cost effective to sample for all of the potential pathogens associated with gray and black water intrusions, there are several microbiological indicator organisms that are useful in determining the type and extent of contamination and are also useful in evaluating cleanup procedures. *Escherichia coli* and *Enterococcus* are both enteric bacteria associated with sewage contamination that lend themselves to rapid and cost effective characterization of water-contaminated materials.

*Escherichia coli*, a gram-negative bacillus, is often present as normal flora in the intestines of humans and animals. *E.coli* is a classic indicator of fecal contamination used in the water and food industries for assessing potential fecal contamination.



Enterococci are gram-positive cocci and are a subgroup of the fecal streptococci. They have been used extensively in the United States and abroad for determining the extent of fecal contamination in recreational surface water.

Because of the wide spread use of E.coli and Enterococcus as an indicator of fecal contamination in the water and food industries, manufacturers have developed rapid 24 hour defined substrate culture techniques. In the proper setting, these organisms serve as useful indicators for the presence of sewage contamination on building substrates and building contents.

## **Is Indoor Mold Contamination a Threat to Health?**

### **Part 1 of a 2 Part Series**

The following article is part one of a two-part series article that was written by Harriet M. Ammann, Ph.D., D.A.B.T. She is a senior toxicologist for Washington State Department of Health, Office of Environmental Health Assessments. The second half of this article will appear in IAQ Tech Tip #47. The full text of the article is available at: <http://www.doh.wa.gov/ehp/oehas/mold.html>

### **The Fungus Among Us**

Molds, a subset of the fungi, are ubiquitous on our planet. Fungi are found in every ecological niche, and are necessary for the recycling of organic building blocks that allow plants and animals to live. Included in the group "fungi" are yeasts, molds and mildews, as well as large mushrooms, puffballs and bracket fungi that grow on dead trees. Fungi need external organic food sources and water to be able to grow.

### **Molds**

Molds can grow on cloth, carpets, leather, wood, sheet rock, insulation (and on human foods) when moist conditions exist (Gravesen et al., 1999). Because molds grow in moist or wet indoor environments, it is possible for people to become exposed to molds and their products, either by direct contact on surfaces, or through the air, if mold spores, fragments, or mold products are aerosolized.

Many molds reproduce by making spores, which, if they land on a moist food source, can germinate and begin producing a branching network of cells called hyphae. Molds have varying requirements for moisture, food, temperature and other environmental conditions for growth. Indoor spaces that are wet, and have organic materials that mold can use as a food source, can and do support mold growth. Mold spores or fragments that become airborne can expose people indoors through inhalation or skin contact.

Molds can have an impact on human health, depending on the nature of the species involved, the metabolic products being produced by these species, the amount and

duration of individual's exposure to mold parts or products, and the specific susceptibility of those exposed.

Health effects generally fall into four categories. These four categories are allergy, infection, irritation (mucous membrane and sensory), and toxicity.

- Allergy. The most common reaction.
- Infection. Infection from molds that grow in indoor environments is not a common occurrence, except in certain susceptible populations, such as those with immune compromise from disease or drug treatment.
- Mucous Membrane and Trigeminal Nerve Irritation. A third group of possible health effects from fungal exposure derives from the volatile compounds (VOC) produced through fungal primary or secondary metabolism, and released into indoor air. Such compounds in low but sufficient aggregate concentration can irritate the mucous membranes of the eyes and respiratory system.
- Adverse Reactions to Odor. Odors produced by molds may also adversely affect some individuals.

## **The Material Truth**

When choosing a glove you should consider the hazards, functions, physical demands, length of exposure, frequency of use, and other conditions found in the workplace. by Tito Aldape

All gloves are not created equal. The "one glove fits all" concept often falls short of providing the best-suited glove for the job.

When selecting gloves, particular attention must be paid to the potential hazards or workplace situations associated with each professional function. Choosing the appropriate hand protection requires a full understanding of the environment.

In recent years, the potential for exposure or infection related to bloodborne pathogens, contaminated bodily fluids, and harsh chemicals has necessitated the use of protective barriers. Disposable gloves provide a primary form of barrier protection against these hazards. However, because there is no single glove type best suited to all applications, the disposable glove supplier is charged with a formidable task of meeting the hand protection and barrier protection needs of glove wearers in many environments. What's more, medical and industrial disposable gloves are continually subjected to more stringent regulatory and quality guidelines set forth by the U.S. Food and Drug Administration and the American Society for Testing and Materials (ASTM). This creates growing demands on the glove industry to substantiate data and provide higher-quality products.

## **Standard Glove Materials**

Disposable gloves for health care, laboratory, and industrial applications generally are made from either natural rubber latex (NRL) or synthetic elastomeric materials. The quality of raw materials, manufacturing formulations, and manufacturing processes directly affect the consistency of glove properties and overall performance.

Therefore, each glove type has different barrier integrity to hazardous exposures: NRL offers barrier protection to biological contaminants; synthetics offer a broad range of chemical resistance. The in-use performance of each glove type also varies widely. Vinyl gloves have been reported to exhibit the largest in-use leakage rates. Synthetic products are necessary in latex-free workplace environments or for individuals who are latex-sensitive. It is this type of information that must be considered when selecting and purchasing disposable gloves.

**Natural Rubber Latex** (NRL) is an elastic material that is prepared by using the collected sap from the natural rubber tree (*Hevea brasiliensis*). NRL prepared from collected sap from optimized strains of the rubber tree have been reported to render a more predictable raw material. NRL is used in the manufacture of many products and medical devices, including sterile and non-sterile exam gloves. It is a highly durable and flexible material that provides a high measure of protection against many bloodborne pathogens and environmental contaminants.

**Poly-chloroprene** is the generic name for Neoprene, a trade name owned by DuPont®. Poly-chloroprene is a synthetic rubber with outstanding resistance to ozone, weathering, oil and many chemicals. Gloves made from poly-chloroprene are more soft, elastic, and comfortable than gloves made from other synthetic materials.

**Nitrile rubber** is a synthetic elastic material noted for its oil resistance. Nitrile rubber is used to produce gloves that offer resistance to many chemicals. Products made from nitrile rubber are generally less elastic than products made from poly-chloroprene or natural rubber latex. As a result, gloves made from nitrile tend to be less comfortable.

**Vinyl** is a synthetic plastic material. Depending on the manufacturing process, it can be used to make flexible or rigid molded products. Some examples of vinyl products include food wrapping films, gloves, and plumbing pipes.

It is easy to see why the relationship between the disposable glove supplier and buyer has never been more critical. The decision to purchase gloves requires a thorough understanding of technical glove data, appropriate applications for glove use, glove types, and vendor accessibility. For these reasons, organizations that purchase gloves have a responsibility to partner with a knowledgeable and service-oriented disposable glove provider.

Suppliers must be fully aware of the concerns and needs of their customers with regard to the functions of glove users, and they must be committed to providing superior latex and synthetic medical gloves.

## **INTERNET NEWS - None**

## **INDUSTRIAL HYGIENE PROFESSIONAL NEWS**

### **BCSP Makes Two More Specialty Exams Available**

CSPs can now sit for two new specialty exams to demonstrate their competence in construction safety and system safety. Exams are available at all Sylvan learning centers. Contact the BCSP for more information. <http://www.bcsp.org>

### **AIHA Top Public Policy Issues for 2001**

The American Industrial Hygiene Association (AIHA) recently identified its top public policy issues for 2000-2001. As the industrial hygiene and environmental health and safety advocate, AIHA will focus on these issues over the next year. The policy issues include:

- OSHA reform issues, including 3<sup>rd</sup> party workplace review legislation;
- Permissible Exposure Limits (PELs) standard setting;
- Ergonomics standard;
- Health and safety program standard;
- Professional recognition/title protection legislation and regulation;
- Laboratory accreditation issues;
- Indoor air standard/indoor air quality;
- Regulatory reform legislation;
- Risk assessment legislation; and
- OH&S small business assistance legislation.

"These are the most crucial issues in public policy facing our collective profession," said Steven P. Levine, Ph.D., CIH, president, AIHA. "Together, we must let the public and government officials know that we are serious when it comes to protecting people in the workplace and at home from hazards and the like."

### **IH at the Crossroads**

Jeff Burton discusses 10 steps now being taken - or that should be taken - to get the profession where it should be. We list the 10 steps. The full text of his article is available at <http://www.ohsonline.com>

1. Our major associations should work to understand the issues connected with ethnic and economic stratifications, "industrial hygiene justice", continued illnesses on the job, and getting IH services to smaller workplaces.
2. The IH associations should provide complete EH&S services for those who have responsibilities in safety and environment.
3. AIHA, ACGIH, and other IH-related groups should work together and find new and innovative ways of cooperating in a cost-effective manner.
4. AIHA should complete the unification and consolidation of itself.
5. We need to continue to strengthen our support of special interests in the profession.
6. We need to develop and participate with others in the generation of good standards of IH and EH&S practices.
7. Our associations should actively support IHs working in international roles and recognize and adapt to globalization.
8. We need to improve IH training and education of engineers and attract them into the profession.
9. We need to support applied research and development.
10. IH associations should support the updating of codes and regulations and OSHA reform.

## **PUBLICATIONS**

### **Prevent Fatal Falls**

In a new report, the U.S. Centers for Disease Control and Prevention's (CDC) National Institute for Occupational Safety and Health (NIOSH) recommends strategic precautions to prevent fatal, work-related falls. "Worker Deaths by Falls: A Summary of Surveillance Findings and Investigative Case Reports," DHHS (NIOSH) Publication No. 2000-116, provides a practical on-site resource for assessing individual workplaces, identifying risk factors for falls, and developing effective preventive measures. It is designed to be useful for employers and workers as well as for safety professionals.

Employers should design and use comprehensive fall-protection programs to reduce the risk of serious or fatal injuries, NIOSH recommends. At a minimum, employers should:

1) incorporate safety in work planning, 2) identify all fall hazards at a work site, 3) conduct safety inspections regularly, 4) train employees in recognizing and avoiding unsafe conditions, and 5) provide employees with appropriate protective equipment and train them in its use.

As tools for such programs, the new report includes:

- Extensive recommendations for preventing falls from ladders, scaffolds, buildings, fork lifts and stationary vehicle, and trees. The recommendations reflect current government and industry standards, as well as NIOSH research findings.
- All 90 case reports that NIOSH has issued from investigations of fatal job-related falls under its Fatality Assessment and Control Evaluation program. Covering a wide range of work activities, these findings and recommendations will be useful to employers and workers in identifying and reducing risks in similar situations.

"Worker Deaths by Falls: A Summary of Surveillance Findings and Investigative Case Reports" is available at no charge by calling the NIOSH toll-free information number, 1-800-35-NIOSH (1-800-356-4674). Information on other NIOSH research is available by calling the information number or by visiting NIOSH on the World Wide Web at [www.cdc.gov/niosh](http://www.cdc.gov/niosh)

## **JUST THE FACTS**

### **Falls**

Once the third leading cause of work-related death across all industries, falls have surpassed workplace homicide to become the second leading cause after motor vehicle crashes. Last year alone, some 717 workers died of injuries caused by falls from ladders, scaffolds, buildings, or other elevations. That equaled almost two deaths per day on average. In the construction industry, falls lead all other causes of occupational death, but the risk is present in virtually every kind of workplace. It may occur in many forms, from standing on a ladder to change a lightbulb, to connecting bolts on steel girders hundreds of feet above the ground.

### **Fires and Pickup Trucks**

In recent incidents reported to NIOSH, fires spontaneously ignited when workers or others attempted to fill portable gasoline containers (gas cans) in the backs of pickup trucks equipped with plastic bed liners or in cars with carpeted surfaces.

Serious skin burns and other injuries resulted. Similar incidents in the last few years have resulted in warning bulletins from several private and government organizations. These fires result from the buildup of static electricity. The insulating effect of the bed liner or carpet prevents the static charge generated by gasoline flowing into the container or other sources from grounding. The discharge of this buildup to the grounded gasoline dispenser nozzle may cause a spark and ignite the gasoline. Both ungrounded metal (most hazardous) and plastic gas containers have been involved in these incidents.

### **E-signatures Acceptable on Training Documents**

OSHA recently issued a letter of interpretation stating that they will accept the use of an electronic signature to satisfy its training certification requirements. OSHA reminds us that their letters of interpretation and other compliance guidance is not law.

### **Internet Sources for Sharps Information**

The following hyperlink takes you to a great starting place for researching needle safety issues and finding out about new, safer products coming to the market.

<http://www.ohb.org/device99.htm>

## **ARMY ITEMS OF INTEREST**

### **WRAMC Industrial Hygiene Services Re-organization**

Industrial Hygiene and Environmental Compliance Section, Preventive Medicine Service, WRAMC will be re-organized into the WRAMC Garrison, Directorate of Safety, Hygiene and Environment on January 1, 2001. The new name is the Industrial Hygiene and Environmental Compliance Office. The office symbol will officially change from MCHL-HO to MCWR-IH. The essential missions of the organization will remain the same.

The offices will physically relocate from the ground floor, Building 41 to the 2nd floor, East Wing, Building 11 (Delano Hall). The telephone and fax numbers will not change.

Please address your questions to:

Brian P. Kaiser, RPIH  
Chief, Industrial Hygiene and Environmental Compliance Office  
WRAMC / WRHCS

### **The Intermediate Industrial Hygiene Topics Course (6H-F10)**

The Intermediate IH Topics Course provides training and continuing education in technical aspects of industrial hygiene topics. Specific content may vary from year to year depending on current issues. However, the course addresses the principle topics of Respiratory Protection, Industrial Ventilation, Air Monitoring Equipment, Lead, Asbestos and Indoor Air Quality. This course is primarily for MEDCOM personnel but other qualified personnel may attend on a space available basis. Applicants must have attended the Basic IH Course at the AMEDD Center & School or attended an IH Course through AIHA, OSHA or an accredited university.

Dates: March 19-30, 2000

Location: The Sheraton Hotel, Towson, MD

Funding: Self-funded, participants pay for their own travel and per diem. Per diem for Baltimore is \$152; \$110 for hotel and \$42 for meals.

Application Deadline: January 29, 2001. We will notify participants of their status in early February 2001. There are 35 slots available.

Application Procedures:

Use and existing USACHPPM application and fax to (410)436-8795/DSN: 584-8795.

Apply on line using the USACHPPM web site at <http://chppm-www.apgea.army.mil/trng/datepage.htm>, or

Call at 410-436-2439/DSN: 584-2439 for an application. The course POC is Bonnie Burello.

## **ADMINISTRATIVE INFORMATION**

This document was prepared for the U.S. Army Center for Health Promotion and Preventive Medicine (USACHP) PM), Directorate of Occupational Health Sciences. The POC at the USACHPPM is Mrs. Sandra Monk; Program Manager; Industrial Hygiene Management Program; DSN: 584-2439; COM: 410. 436.2439; e-mail: [Sandra.Monk@apg.amedd.army.mil](mailto:Sandra.Monk@apg.amedd.army.mil).

This document summarizes information and regulatory actions that are relevant for Army Industrial Hygiene Program personnel. We distribute this summary in electronic form only. Please make it available to your staff if they do not have direct access to an electronic copy. A copy is posted on the Army IH Program Home Page (<http://chppm-www.apgea.army.mil/Armyih>). If you would like to be added to the electronic mailing list or if your e-mail address changes, please contact Tammy Budkey, e-mail: [tammy.budkey@apg.amedd.army.mil](mailto:tammy.budkey@apg.amedd.army.mil); or call her at DSN: 584-2439; COM: 410.436.2439; fax: 410.436.8795.



At a minimum; we review the following publications in preparing this summary: [AIHA Journal](#); the [Synergist](#); [Today](#) (ACGIH's Newsletter); OSHA Week; the [Federal Register](#); BNA OSHA Reporter; [Applied Occupational and Environmental Hygiene](#); The [Journal of Occupational and Environmental Medicine](#); [Professional Safety](#); Safety and Health, [Occupational Hazards](#); and [Occupational Health and Safety](#). We also gather information from a variety of sources on the Internet using the Army IH Program Home Page as our gateway. (<http://chppm-www.apgea.army.mil/Armyih/>).

If you have questions or comments; please contact Jim Evenden at [jevenden@lmi.org](mailto:jevenden@lmi.org); 410.638.2081/2086 (voice) or 2093 (fax).